

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
02.01.2004 Bulletin 2004/01

(51) Int Cl.7: F02M 65/00, F02D 41/38,
F02M 63/02

(43) Date of publication A2:
13.03.2002 Bulletin 2002/11

(21) Application number: 01203296.7

(22) Date of filing: 31.08.2001

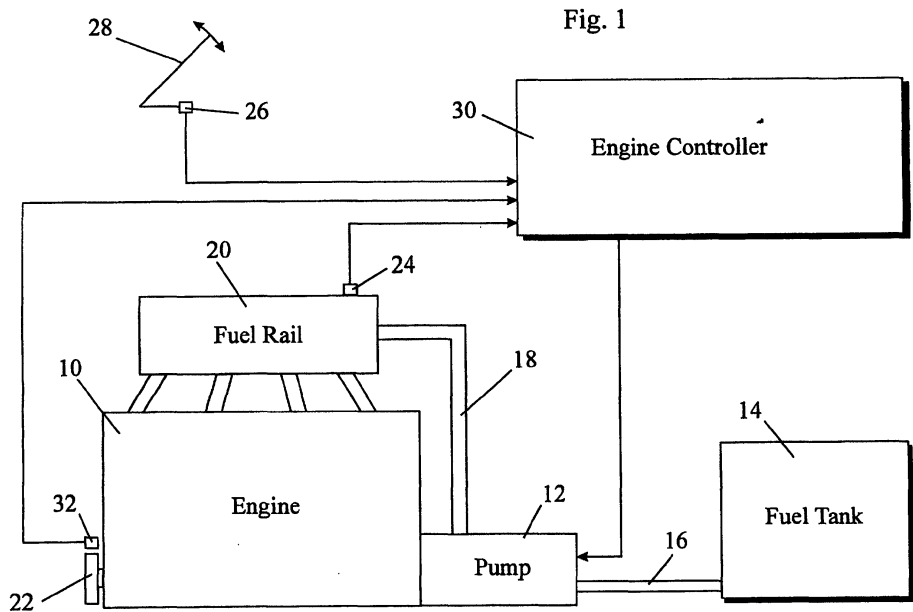
(84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR Designated Extension States: AL LT LV MK RO SI (30) Priority: 07.09.2000 GB 0021923 (71) Applicants: - Cummins Engine Company, Ltd. Darlington, County Durham DL1 4PW (GB) - Iveco (UK) Ltd. Watford, Hertfordshire WD1 1SR (GB) - CNH U.K. LIMITED Basildon, Essex SS14 3AD (GB)	(72) Inventors: - Sweetland, Emma Henley-on-Thames, Oxon RG9 5DT (GB) - Andrews, Eric B. Wooburn, Green, Bucks. HP10 0QU (GB) - Fletcher, Thomas E. Columbus, IN 47201 (US) - Bowling, Stacey A. Maidenhead, Berks. SL6 1UF (GB) (74) Representative: Vandenbroucke, Alberic CNH Belgium N.V. Patent Department Leon Claeystraat, 3A 8210 Zedelgem (BE)
--	--

(54)

Method for detecting leakage in a fuel rail

(57) A method and apparatus are disclosed for detecting leakage in the fuel supply to the injectors of an engine 10 in which the individual injectors are connected to a fuel supply rail 20 to which fuel from a reservoir 14

is supplied under pressure by a fuel pump 12. The pressure within the fuel rail is monitored and it is determined when a parameter of a pressure surge in the fuel supply rail resulting from a rapid transition from high to low engine load fails to reach a reference value.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 20 3296

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 09, 31 July 1998 (1998-07-31) & JP 10 089135 A (TOYOTA MOTOR CORP), 7 April 1998 (1998-04-07) * abstract *	1,8	F02M65/00 F02D41/38 F02M63/02
X	GB 2 310 458 A (BOSCH GMBH ROBERT) 27 August 1997 (1997-08-27) * page 1, line 2 - page 3, line 18 * * page 4, line 1 - page 5, line 1 * * page 6, line 6 - page 7, line 2 * * page 10, line 8 - page 11, line 21 * * page 12, line 2 - page 13, line 15 *	1,8	
A	US 5 685 268 A (WAKEMEN RUSSELL J) 11 November 1997 (1997-11-11) * column 1, line 64 - column 3, line 26 *	1,8	
A	US 6 055 961 A (FRIEDRICH ARNO ET AL) 2 May 2000 (2000-05-02) * column 1, line 32 - column 2, line 27 *	1,8	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 5 715 786 A (SEIBERTH STEFAN) 10 February 1998 (1998-02-10) * column 1, line 31 - line 67 * * column 2, line 65 - column 3, line 46 *	1,8	F02D F02M
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 30 October 2003	Examiner Calabrese, N
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 20 3296

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-10-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 10089135	A	07-04-1998	JP 3339326 B2	28-10-2002

GB 2310458	A	27-08-1997	DE 19622757 A1	15-05-1997
			FR 2741113 A1	16-05-1997
			JP 9170518 A	30-06-1997

US 5685268	A	11-11-1997	BR 9709339 A	10-08-1999
			CN 1225708 A ,B	11-08-1999
			CZ 9803770 A3	16-06-1999
			DE 69701523 D1	27-04-2000
			DE 69701523 T2	21-12-2000
			EP 0900325 A1	10-03-1999
			WO 9744573 A1	27-11-1997
			KR 2000015864 A	15-03-2000

US 6055961	A	02-05-2000	DE 19634982 A1	12-03-1998
			FR 2752881 A1	06-03-1998

US 5715786	A	10-02-1998	DE 19520300 A1	05-12-1996
			WO 9638664 A1	05-12-1996
			DE 59605914 D1	26-10-2000
			EP 0778922 A1	18-06-1997
			JP 10503571 T	31-03-1998
